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USSN 08/131,523 BH
12-31-96

Response Amendment

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: LUDWIG, L. et al.
Serial No: 08/131,523
Filed: October 1, 1993
For: MULTIMEDIA COLLABORATION SYSTEM

Docket No: VCOR-001/02 US
Art Unit: 2317
Examiner: Dung Dinh

OFFICIAL

DEC 06 1996

Assistant Commissioner of Patents
Application Processing Division
Washington, D.C. 20231

AMENDMENT

Please amend the claims as follows in response to the Office Action dated October 10, 1996:

Delete Claim 55

(Once amended) The teleconferencing system of claim [55] ~~207~~, [where in] wherein the video image and spoken audio of [said] a first participant at the first location, routed to said second location[,] via said third location, can be reproduced at the workstations of both said first participant and a second participant[s] at the second location.

Certificate of Facsimile Mailing

I hereby certify that this correspondence is being transmitted by facsimile addressed to Examiner Dung Dinh, Art Unit 2317, Facsimile Number (703) 308-5359, at United States Patent and Trademark office, Washington, D.C. 20231, at 5:15 a.m. on December 6, 1996

Date: December 6, 1996 By: Shirley Johnson

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~~58.~~ (Once Amended) The teleconferencing system of claim [55] ~~207~~, wherein said AV path includes dedicated links between said [first and third] locations [and between said second and third locations].

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~~59.~~ (Once Amended) The teleconferencing system of claim [55] ~~207~~, wherein said AV path includes dial-up connections between said [first and third] locations [and between said second and third locations].

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~~60.~~ (Once Amended) The teleconferencing system of claim [55] ~~207~~, wherein said AV path [supports both] includes dial-up connections and dedicated links between said [first and third] locations [and between said third and second locations].

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~~61.~~ The teleconferencing system of claim ~~60~~, wherein said AV path includes a dial-up connection between [said first and third] at least two locations and a dedicated link between [said third and second] at least two locations.

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~~62.~~ (Twice Amended) The teleconferencing system of claim [55] ~~57~~, further comprising a video mosaic generator [for combining] configured to combine the captured video images of at least said first and second participants into a mosaic image for reproduction at at least one workstation.

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~~63.~~ (Thrice Amended) The teleconferencing system of claim ~~62~~, further comprising a distributed video mosaic generator configured to combine [means for combining] a portion of said mosaic image with a captured image of [said] a third participant to generate a [composite] distributed mosaic image of the captured images of said three participants[, and wherein said composite mosaic image can be reproduced] for reproduction at the workstation of at least one of [said] the three participants.

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~~64.~~ (Thrice Amended) The teleconferencing system of claim [55] ~~62~~, wherein the mosaic image includes images of the first and second and a third participant, the system further comprising an audio summer[, in communication with said AV path, for receiving] configured to receive the captured audio of said first, second and third participants and combining only the received audio of the second and third participants into an audio sum for reproduction at the workstation of said first participant.

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65. The teleconferencing system of claim 64, further comprising:

(a) means for combining a part of said audio sum with the captured audio of another of said participants to generate a composite audio sum for reproduction at the workstation of at least one of said participants.

66. (Thrice Amended) The teleconferencing system of claim [55] 207, further comprising:

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(a) at least one signal router [for routing at least said AV signals among said participant's workstations so as] configured to optimize the [carrying] routing of AV signals between said [workstations] locations.

67. The teleconferencing system of claim 66, wherein said router optimizes said signal routing based on either the actual or the anticipated state of said AV path.

71. (Once Amended) The teleconferencing system of claim [55] 208, wherein said AV path includes at least one trunk [and] associated with at least one codec.

187. (Twice Amended) The teleconferencing system of claim [55] 57, further comprising:

(a) a data network providing a data path for carrying data signals among the workstations; and

[a](b) a data conference manager for managing a data conference during which shared data is displayed [on] at the [monitors] workstations of a plurality of the participants [said workstations; and wherein a videoconference, during which the video image and spoken audio of one of said participants are reproduced at the workstation of another of said participants, is managed by utilizing a data network operating system and a data network protocol of said first network].

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~~188.~~ (Twice Amended) The teleconferencing system of claim ~~187~~, further comprising a video mosaic generator [for combining] configured to combine at least a portion of captured video images of said first and second participants to generate a mosaic image for reproduction at least one workstation.

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~~189.~~ The teleconferencing system of claim ~~188~~, further comprising a close-up selector for selecting the image of one of the participants in said mosaic image and replacing said mosaic image with the image of said selected image.

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~~190.~~ (Thrice Amended) The teleconferencing system of claim ~~188~~, wherein the mosaic image includes images of the first and second and a third participant, the system further comprising an audio summer[, in communication with said AV path, for receiving] configured to receive the captured audio of said first, second and third participants and combining only the received audio of the second and third participants into an audio sum for reproduction at the workstation of said first participant.

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~~191.~~ (Twice Amended) The teleconferencing system of claim ~~190~~, wherein the AV reproduction capabilities of at least the workstation of the first participant includes a plurality of speakers, the system further comprising:

(a) an audio control [for controlling] configured to control the reproduction of said audio sum at said first participant's workstation such that the composition of the audio originating from each of the second and third participants reproduced at each speaker is

dependent on a position of the images of the second and third participant in said reproduced mosaic image.

192. The teleconferencing system of claim 191, further comprising an echo canceller to reduce echo during the reproduction of said audio sum.

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~~193.~~ (Once Amended) The teleconferencing system of claim ~~187~~ 13, wherein [said first and second networks employ] the AV and data paths define physically separate paths.

Delete Claim 194

195. (Twice Amended) The teleconferencing system of claim [65], 64 wherein the AV reproduction capabilities of at least the workstation of the first participant includes a plurality of speakers, the system further comprising:

(a) an audio control [for controlling] configured to control the reproduction of said audio sum at said first participant's workstation such that the composition of the audio originating from each of the second and third participants reproduced at each speaker is dependent on a position of the images of the second and third participants in said reproduced mosaic image.

Delete claim 196.

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34 ~~197.~~ (Once Amended) The method of conducting a teleconference of claim [196] ~~218~~, further comprising the steps of:

(a) combining the captured images of a first and second participant into a mosaic image; and

(b) reproducing the mosaic image at [least one] a workstation.

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~~198.~~ The method of conducting a teleconference of claim ~~197~~, further comprising the steps of:

(a) combining a portion of the mosaic image with a captured image of another of the participants to generate a composite mosaic image; and

(b) reproducing the composite mosaic image at the workstation of at least one of the participants.

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~~199.~~ (Once Amended) The method of conducting a teleconference of claim [196] ~~218~~; further comprising the steps of:

(a) receiving the captured audio of a first, second and third participant;

(b) combining the received audio of only the second and third participants into an audio sum: and

(c) reproducing the audio sum at the workstation of [the] first participant.

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~~200.~~ (Once Amended) The method of claim [196] ~~218~~, further comprising the steps of:

(a) routing [at least] the [AV] compressed signals [among participant's workstations in such a way so as] to optimize [the carrying of AV signals] their transfer between the [workstations] locations.

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~~201.~~ (Once Amended) The method of claim ~~200,~~ wherein the optimization is based on either the actual or the anticipated state of the [AV path] links between the locations.

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~~202.~~ (Twice Amended) The method of conducting a teleconference of claim [196] ~~218,~~ further comprising the steps of:

(a) managing a data conference[,] during which data is shared among a plurality of participants and displayed [on the monitors of their respective] at associated workstations; and

(b) managing a videoconference, during which the video image and spoken audio of one participant[s] are reproduced at the workstation [of] associated with another participant[, by utilizing a data network operating system and a data network protocol of the first network].

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~~203.~~ (Once Amended) The method of conducting a teleconference of claim ~~202~~, further comprising the steps of:

(a) combining at least a portion of the captured images of [the] a first and a second participant[s] into a mosaic image; and

(b) reproducing the mosaic image at [least one] a workstation.

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~~204.~~ The method of conducting a teleconference of claim ~~203~~ further comprising the steps of:

(a) selecting the image of one of the participants in the mosaic image; and

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(b) replacing the mosaic image with the image of the selected image.

205. (Once Amended) The method of conducting a teleconference of claim 203, further comprising the steps of:

(a) receiving captured audio of the first and second participants and [captured audio of] a third participant;

(b) combining the received audio of only the second and third participants into an audio sum; and

(c) reproducing the audio sum at the workstation [of] associated with the first participant.

206. (Once Amended) The method of conducting a teleconference of claim 205, wherein the reproduced mosaic image includes images of the first, second and third participants [AV reproduction capabilities of at least the workstation of the first participant includes a plurality of speakers], the method further comprising the step[s] of:

(a) [controlling the reproduction of] reproducing the audio sum at the first participant's workstation such that the composition of the reproduced audio [originating from each of the second and third participants reproduced at each speaker] is dependent on a position of the images of [the second and third] participants in the reproduced mosaic image.

Add the following claims.

207. A teleconferencing system for conducting a teleconference among a plurality of participants comprising:

(a) first, second and third locations;

(b) at least one workstation at each of the first, second and third locations, each workstation including audio and video capture and reproduction capabilities arranged to capture and reproduce participant video images and spoken audio;

(c) a codec associated with each of the first, second and third locations;

(d) an AV path linking the three locations;

(e) a network switch associated with at least one of the first and second locations and designed to route codec compressed AV signals representing captured participant video images and spoken audio along the AV path; and

(f) a switch in communication with the third location to route compressed AV signals, destined for the second location, from the first location to the second location without the compressed AV signals being decompressed or reproduced at said third location.

208. The teleconferencing system of claim 207, further comprising a Local Area Network switch functionally positioned between the workstation at and the codec associated with one of the first and second locations to route signals to the workstation at that location wherein

the location at which the Local Area Network switch is positioned is a multi-participant location having a plurality of workstations, and wherein

the Local Area Network switch is arranged to receive signals from the codec at that location and route the received signals to a destination workstation of the workstation plurality.

209. The teleconferencing system of claim 208, wherein the Network switch is associated with the multi-participant location.

210. The teleconferencing system of claim 209, wherein

(a) the number of workstations at each multi-participant location is greater than the number of any one resource in the group consisting of codecs and network switches associated with that location, and

(b) each of the workstations has access to any of the resources.

211. The teleconferencing system of claim ~~207~~, further comprising a directory containing participant location information and wherein the compressed AV signals are routed using participant information in the directory.

212. The teleconferencing system of claim 211, further comprising:

(a) a participant locator that responds to a participant logging into a workstation by associating that participant with each such workstation logged into, thereby enabling the

routing of a videoconference call, for that participant, to the workstation at which that participant is logged in.

213. The teleconferencing system of claim 62, wherein video images are reproduced at a workstation as full-motion video.

214. The teleconferencing system of claim 213, wherein the full-motion video images are reproduced at a workstation at a rate of at least about 30 frames per second.

215. The method of conducting a teleconference of claim 196, further comprising the steps of:

(a) associating a participant with each workstation logged into by the participant; and

(b) routing a call to initiate a videoconference with such participant to the workstation at which that participant is logged in.

216. The method of claim 196, wherein video images are reproduced at a workstation as full-motion video.

217. The method of claim 216, wherein the full-motion video images are reproduced at a workstation at a rate of at least about 30 frames per second.

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218. A method of conducting a teleconference among at least one participant at each of first and second locations, each location having at least one associated workstation with audio and video capture and reproduction capabilities and codec and one of the locations having a Local Area Network switch, the method comprising the steps of:

(a) linking the first and second locations with a third location including at least one workstation with audio and video reproduction capabilities and at least one codec;

(b) capturing video images and spoken audio of a participant at the first location;

(c) compressing signals representing the captured video and audio at the first location;

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(d) routing compressed signals, destined for the second location, to the third location;

(e) receiving the routed signals at the third location and routing the received signals from the third to the second location without decompressing the received signals or reproducing the audio or video represented by the received signals at the workstation at the third location;

(f) receiving the signals from the third location and reproducing the audio and video, captured at the first location, at the second location; and

(g) using the Local Area Network switch to route signals representing captured participant audio and video between the workstation and the codec at the location having the switch.